Claims

1. An oxidic catalyst for the production of phthalic anhydride by oxidizing a hydrocarbon selected from the group consisting of *o*-xylene, naphthalene, and mixtures thereof, which catalyst comprises, based on the catalytically active composition, from 2 to 15% by weight (calculated as V_2O_5) of vanadium, from 1 to 15% by weight (calculated as SnO_2) of tin, from 70 to 97% by weight (calculated as TiO_2) of titanium oxide.

2. The catalyst of claim 1 which further contains, based on the catalytically active composition, up to 5% by weight (calculated as M_2O) of at least one alkali metal.

3. The catalyst of claim 2 wherein the alkali metal is cesium.

4. The catalyst of claim 3 wherein the cesium is present in an amount of from 0.01 to 2% by weight (calculated as Cs_2O), based on the catalytically active composition.

5. The catalyst of any of claims 1 to 4 wherein the tin is present in the oxidation state +IV.

6. The catalyst of any of claims 1 to 5 wherein the titanium oxide has a specific surface area of 10 to 30 m^2/g, preferably 18 to 25 m^2/g, and the anatase structure.

7. The catalyst of any of claims 1 to 6 wherein the catalytically active composition contains from 4 to 10% by weight (calculated as V_2O_5) of vanadium oxide, from 2 to 7% by weight (calculated as SnO_2) of tin oxide and from 0.1 to 0.8% by weight (calculated as Cs_2O) of cesium oxide.

8. The catalyst of any of claims 1 to 7 which further contains at least one element selected from the group consisting of lithium, potassium, rubidium, aluminium, zirconium, iron, nickel, cobalt, manganese, silver, copper, chromium, molybdenum, tungsten, iridium, tantalum, niobium, arsenic, antimony, cerium, phosphorus and mixtures thereof in an amount of up to 5% by weight, based on the catalytically active composition.

9. The catalyst of any of claims 1 to 8 wherein the catalytically active composition is coated on an inert support in an amount of 2 to 15% by weight, preferably 3 to 12% by weight, based on the total weight of the catalyst.

10. The catalyst of claim 9 wherein the inert support consists of pellets or granules of at least one material selected from the group consisting of corundum, steatite, alumina, silicon carbide, silica, magnesium oxide, aluminium silicate and mixtures thereof.

11. A process for the manufacture of a catalyst according to any one of claims 1 to 10, comprising the steps of
(i) mixing, in an aqueous or organic solvent, the ingredients of the catalytically active composition and/or precursors of said ingredients, to form a solution or suspension,
(ii) coating said solution or suspension in the form of a thin layer on an inert support and drying or, if an unsupported catalyst is desired, evaporating the solvent of said solution or suspension and, optionally, drying and/or comminuting the solid residue and,
(iii) subjecting the coated support or the solid residue obtained by evaporating the solution or suspension to a thermal treatment to form the definitive catalytically active composition.

12. The process of claim 11 wherein the ingredients and/or precursors of the catalytically active composition used to prepare the initial mixture comprise at least one vanadium compound selected from the group consisting of vanadium(V) oxide, ammonium metavanadate, vanadium chlorides, vanadium oxychloride, vanadium acetylacetonate and vanadium alkoxides, at least one tin compound selected from the group consisting of tin dioxide, metastannic acid, orthostannic acid, tin oxyhydrates, tin chlorides and tin acetate.

13. The process of claim 11 or 12 wherein the thermal treatment is conducted at 250 to 400 °C.

14. The process of any of claims 11 to 13 wherein the catalytically active composition is coated on an inert support in granular or pellet form by spraying the solution or

suspension of the ingredients and/or precursors of the catalytically active composition onto said inert support and evaporating the solvent.

15. A process for the production of phthalic anhydride comprising the oxidation of a hydrocarbon selected from the group consisting of *o*-xylene, naphthalene and mixtures of *o*-xylene and naphthalene in the gas phase at 340 to 400 °C with an oxygen-containing gas in a fixed-bed reactor in the presence of a catalyst according to any of claims 1 to 10.

16. The process of claim 15 wherein the initial concentration of the hydrocarbon in the gas phase is 0.5 to 2.0% by volume.

17. The process of claim 15 or 16 wherein the gauge pressure at the entrance of the reactor is 0.35 to 0.55 bar.